Listing of the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) A method for characterizing an elasticity property of a viscous medium, the method comprising:

(a) directing an ultrasound wave in the viscous medium and modulating the ultrasound wave at a frequency of vibration to produce a vibrational force on the medium at a focal point of the transducer inducing a vibration of the medium at ~~a~~ the frequency of vibration;

(b) determining a vibrational velocity ~~in the focal region~~ of the medium at the focal point of the transducer as a function of the frequency of vibration;

(c) repeating steps (a) and (b) for a plurality of frequencies to develop a resonance spectrum of the medium;

(d) determining a resonant frequency of the viscous medium; and

(e) determining the elasticity property from the resonance spectrum at the focal point of the transducer.

2. (previously presented) The method as defined in claim 1, wherein the step of modulating the ultrasound wave comprises modulating an amplitude of the ultrasound wave.

3. (original) The method as defined in claim 1, wherein the ultrasound wave is a confocal ultrasound wave.

4. (original) The method as defined in claim 1, wherein the ultrasound wave comprises ultrasound waves produced by a plurality of ultrasound sources.

5. (previously presented) The method as defined in claim 1, wherein step (e) comprises comparing the resonance spectrum to at least one stored resonance spectrum.

6. (original) The method as defined in claim 1, wherein step (b) comprises sensing the vibrational motion of the medium with a laser vibrometer.

7. (original) The method as defined in claim 1, wherein step (b) comprises sensing the vibrational motion of the medium with an ultrasound based motion detector.

8. (original) The method as defined in claim 1, wherein the elasticity property comprises at least one of a shear modulus or a shear viscosity of the medium

9. (original) The method as defined in claim 1, wherein the viscous medium is a biological tissue.

10. (currently amended) A method for characterizing tissue, the method comprising the following steps:

(a) directing a ultrasound wave modulated at a first oscillating frequency from an ultrasound transducer at a focal point of the transducer in the tissue to induce a vibration in the tissue at the focal point of the transducer;

(b) measuring a velocity of the vibration in the tissue at the focal point of the transducer;

(c) varying the oscillating frequency over a range selected to produce a resonance spectrum correlated to a response in the tissue at the focal point of the transducer; and

(d) correlating the resonance spectrum to a known elasticity parameter associated with the resonant frequency.

11. (original) The method as defined in claim 10, further comprising the step of varying the focal point across a selected portion of tissue to characterize changes in the tissue.

12. (original) The method as defined in claim 11, further comprising the step of differentiating a first type of tissue from a second type of tissue.

13. (original) The method as defined in claim 12, wherein one of the first and second types of tissue is a calcification.

14. (previously presented) The method as defined in claim 10, further comprising the step of varying the oscillating frequency in a range between zero and eight kilohertz.

15. (currently amended) An apparatus for determining a elasticity property of a viscous medium, the apparatus comprising:

(a) an ultrasound transducer for applying an ultrasound beam modulated at a selectively varying frequency at the viscous medium to induce a vibration in the viscous medium at a focal point of the ultrasound transducer;

(b) a detector for measuring a velocity and a frequency of the vibration of the medium at the focal point of the transducer; and

(c) a processing unit, the processing unit electrically connected to:

(i) drive the ultrasound transducer to modulate the ultrasound waves at varying frequencies over a selected frequency range;

(ii) receive the velocity and frequency of vibration from the detector;

(iii) determine a resonant frequency at selected positions within the medium; and

(iv) determine at least one of a shear elasticity and a shear viscosity as a function of the resonance spectrum at the focal point of the transducer.

16. (original) The apparatus as defined in claim 15, further comprising a memory component connected to the processor for storing a resonance spectrum profile correlating the vibrational velocity of the medium versus the frequency of vibration of the medium.

17. (currently amended) The apparatus as defined in claim 16, wherein the memory component further comprises a data structure storing known resonance spectrum and correlating the known resonance spectrum to at least one of a shear modulus and a shear viscosity.

18. (original) The apparatus as defined in claim 15, wherein the transducer produces an amplitude modulated signal.

19. (original) The apparatus as defined in claim 15, wherein the transducer is a confocal transducer.

20. (original) The apparatus as defined in claim 15, wherein the detector is a magnetic resonance elastography system.

21. (original) The apparatus as defined in claim 15, wherein the detector is an ultrasound based motion detector system.

22. (previously presented) The method as recited in claim 1, wherein the frequency of vibration caused by the vibrational force is varied between zero and eight kilohertz.

23. (previously presented) The method as recited in claim 10, wherein the known elasticity parameter comprises at least one of a shear modulus and a shear viscosity.

24. (previously presented) The apparatus as recited in claim 15, wherein the selected frequency range is in a range between zero and eight kilohertz.